

Jeep®

Jeep®

Jeep Wrangler



Diagnosis & Repair Manual

Water Leaks

Jeep®

Rev. A

Jeep®

General Notes

1. This manual applies to all Jeep models: 2/4 door & Hard/Soft Top
2. Before testing the vehicle, perform a review of the top system. Make sure all the latches are engaged, none of the top seals are puckered or distorted, the door seals are installed correctly, the tops are not out of alignment, etc.
3. Each leak area can have multiple root causes, as noted in the diagnosis tree. It is important to water test each repair before starting the next.
4. If a leak cannot be reproduced, it is due to the period of time the vehicle is under wet conditions. Some leaks may take hours before leaking.
5. If a leak cannot be reproduced, apply all the repairs to the applicable areas as noted in the diagnosis road map.
6. When the door is open, there is water run off from the roof that can soak the carpet. Be sure to explain to the customer that this cannot be fixed. This is an unfortunate condition with this type of vehicle, similar to convertibles.
7. It is important to understand where the leak ENDS up when diagnosing the vehicle. Where the leak ends up, does not always explain where the leak originates. Refer to the diagnosis tree when determining which repairs to perform.
8. This repair procedure does NOT cover every possible water leak on the Jeep Wrangler. The issues identified in this document are the major leaks that show up in the field.
9. Generally, a car wash is the preferred method to diagnose a vehicle.
10. If a hose is required, place on the top of the vehicle facing forward making sure water is getting to all areas. Do NOT directly spray in the area of question. This can create a “false” leak that cannot be fixed.
11. This manual is not intended to be a service manual. The content identifies the major areas of water leaks, the critical characteristics of each area and how to repair them.

READ FIRST



READ FIRST

Diagnosis Road Map

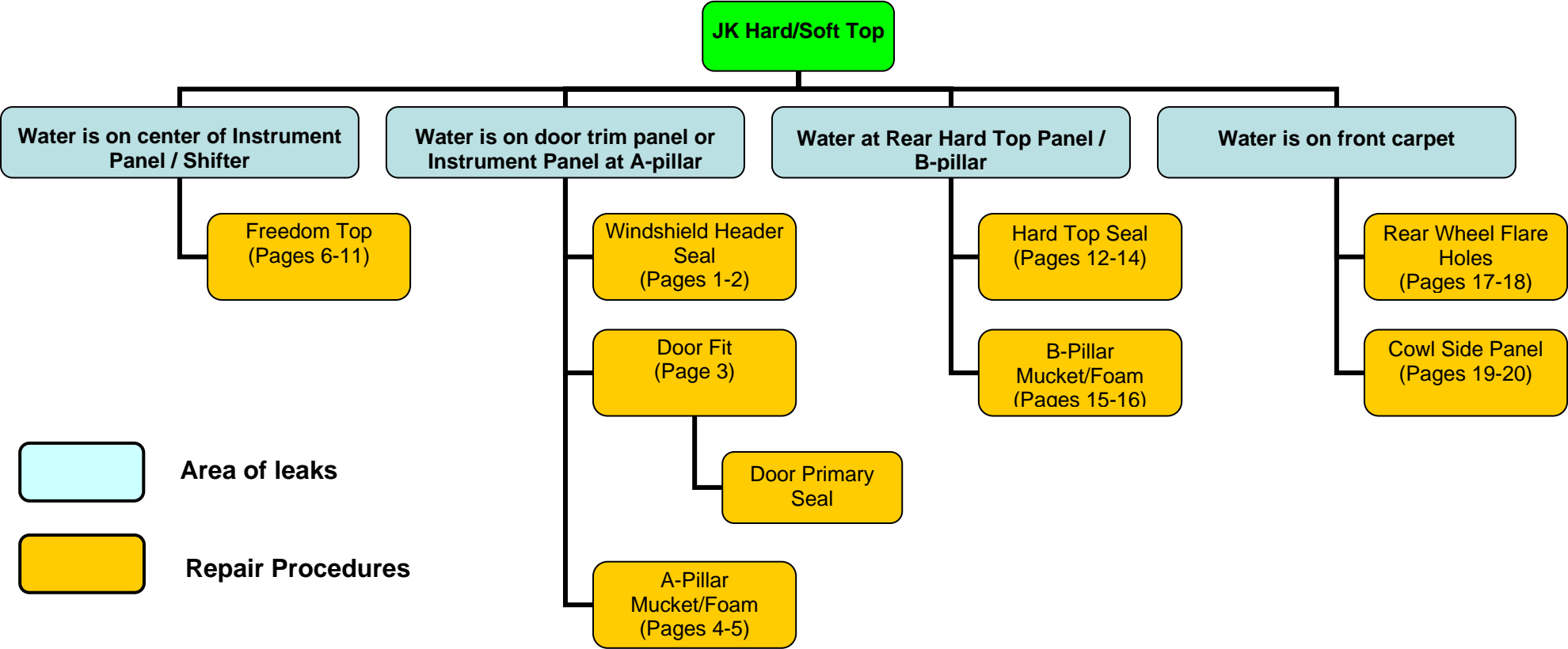


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Windshield Header Seal Repair Procedure

AREA OF LEAK:

- This repair procedure is applicable when water is evident on the:
 - Door trim panel
 - or
 - Instrument panel (a-pillar)



STEP 1: Remove Header Seal

- Figure 1

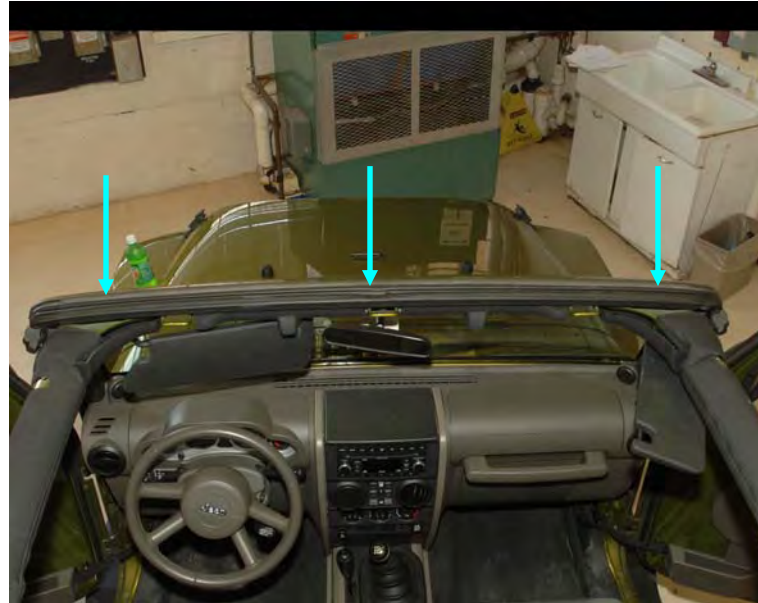


Figure 1

STEP 2: Remove/Clean Surface

- Remove all butyl and tape residue
- A rubber wheel bit can be used
- Clean surface with 3M adhesive cleaner
- Alcohol wipe entire surface and allow to dry



Figure 2

Windshield Header Seal Repair Procedure

STEP 3: Install Butyl

- **NOTE:** This operation is only applicable for vehicles built before 6/1/2008. Vehicles built after this date, should already have sealer present in this area.
- Install 4mm butyl (68027813AA) as shown (Figure 4)
- Make sure to fill in all holes, wrinkles and step offs to allow for a smooth surface to bond the tape/butyl from the new seal
- **NOTE:** Excessive amount of butyl can cause transition voids/leaks. Make sure to smooth out butyl.



Figure 3

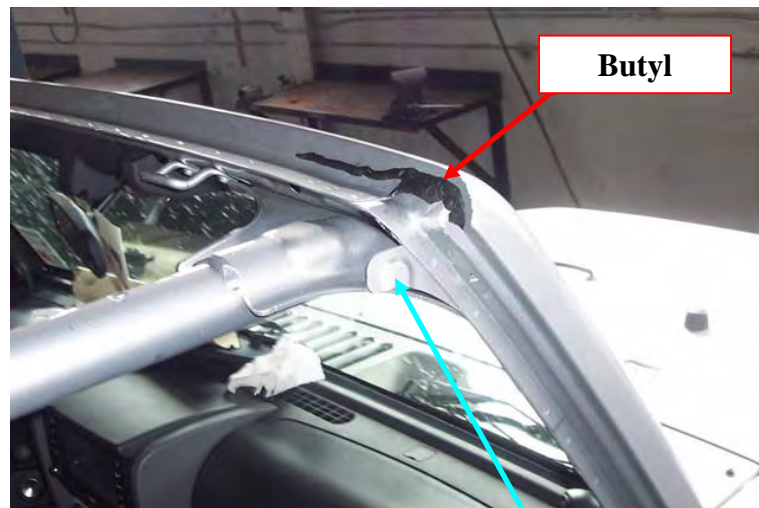


Figure 4

STEP 4: Install Seal

- Locate and install new seal, Pt #: 55397454AE
- Remove release tape and pressurize seal firmly in contact with header sheet metal to smooth out adhesive tape and butyl, starting at the ends and working toward the center. A small roller or firm finger pressure should be used to insure the tape is adhered completely from side to side, **THIS STEP IS CRITICAL**

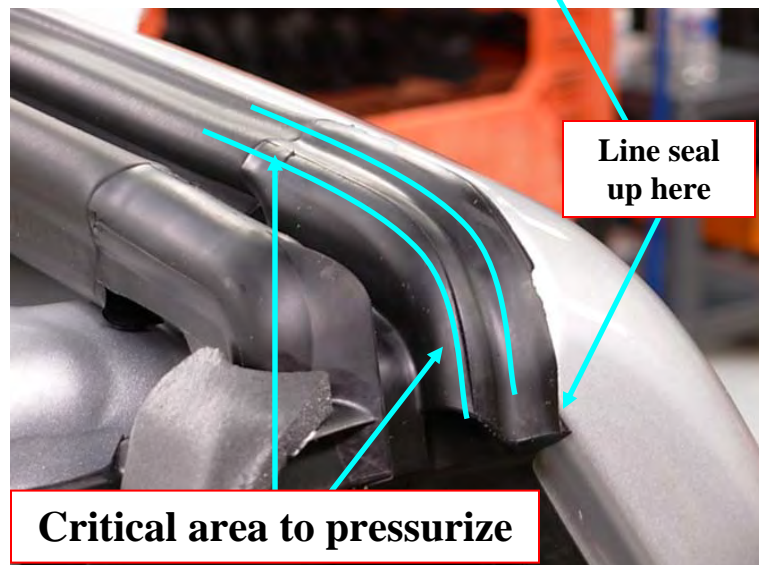


Figure 5

Door Fit Repair Procedure

AREA OF LEAK:

- This repair procedure is applicable when water is evident on the:
 - Door trim panel
 - or
 - Instrument panel (a-pillar)

STEP 1: Door Gap Checks

- Measure door gaps
- The specifications are as follows:
- The gap spec. is 5.0 +/- 2.0 mm
- The flush spec. is 0.0 +/- 2.0 mm
- If the door fit is not to spec, proceed to Step 2

STEP 2: Adjust Doors

- Adjust the door gap and flushness as described in DealerConnect> TechCONNECT under: Service info> 23 – Body> Body Structure> Gap and Flush> Specifications Service Manual

STEP 3: Replace Door Primary Seal

- If the doors are adjusted, the door seal must be replaced
- Part #: 55395274/5AN

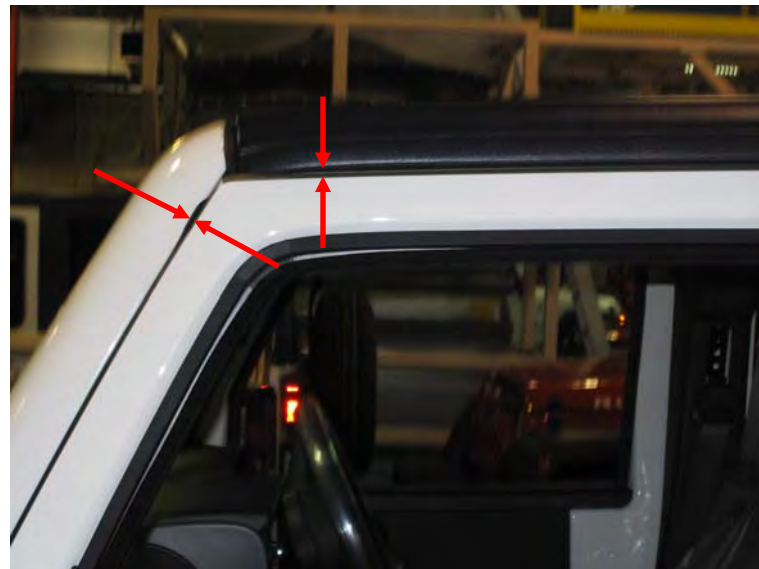


Figure 6



Figure 7

A-Pillar Foam/Mocket Repair Procedure

AREA OF LEAK:

- This repair procedure is applicable when water is evident on the:
 - Door Trim Panel



STEP 1: Header Mocket

- NOTE: This issue/repair applies to both hard and soft top vehicles
- Inspect the header seal mocket for the seal rolled under the freedom panel or side rail. (Figure 8)
- If the seal is folded under, remove the freedom panel or side rail and re-install making sure not to distort the mocket (Figure 9)



Figure 8



Figure 9

A-Pillar Foam/Mocket Repair Procedure

STEP 2: A-Pillar Foam

- NOTE: This issue/repair applies to both hard and soft top vehicles
- Inspect the freedom panel or side rail for damaged/missing foam (Figure 10)
- If the foam is damaged or missing, replace the foam using the foam kit (68026937AB)



Figure 10

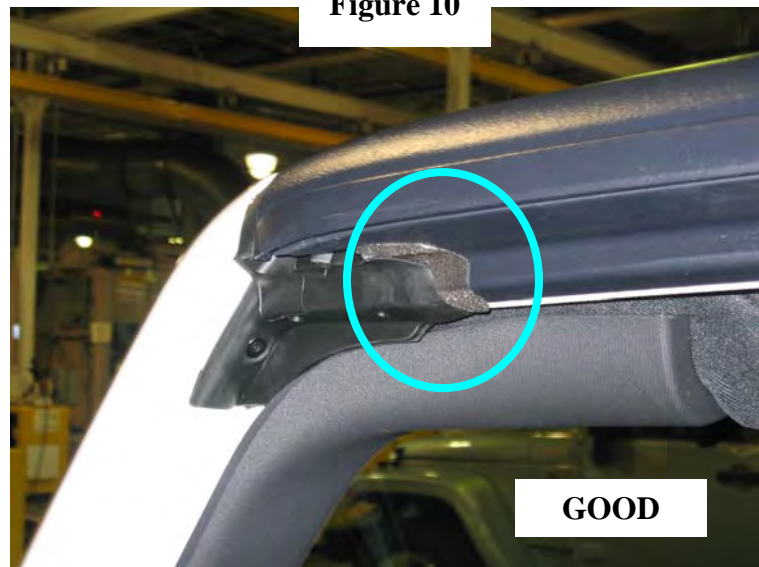


Figure 11

STEP 2: Foam Installation

- Install the foam to the freedom panel as shown in Figure 12
- The foam installation is similar for the soft top rail

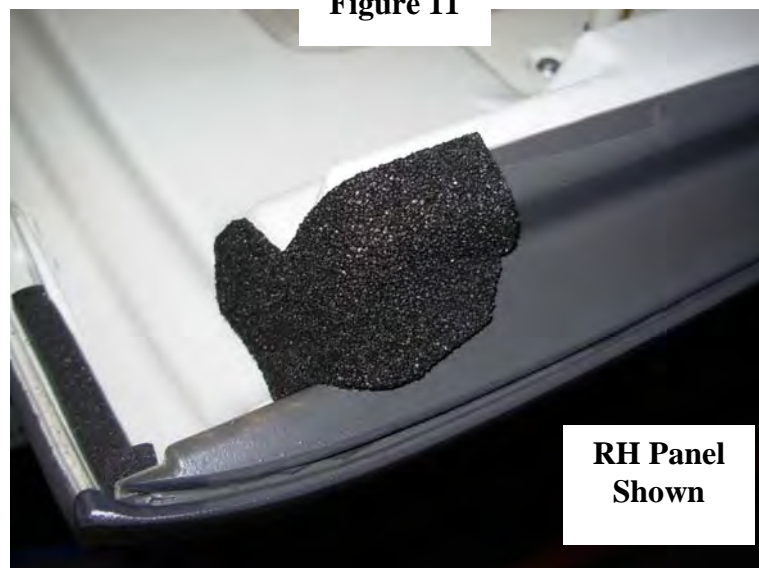


Figure 12

B-Pillar Mocket/Foam Seal Repair

AREA OF LEAK:

- This repair procedure is applicable when water is evident on the:
 - Instrument panel (Center)
or
 - Console / Shifter

RIGHT HAND FREEDOM PANEL

STEP 1: Seal Removal

- Remove seal on Right panel

STEP 2: Tape and Butyl Removal

- Remove tape and butyl residue from panel
- A rubber wheel bit can be used
- Clean Seal Surface with: 3M General Purpose Adhesive Cleaner or Kent Products Acrysol, (if available) and allow to dry completely
- Wipe seal surface with alcohol and allow to dry completely.



Figure 13

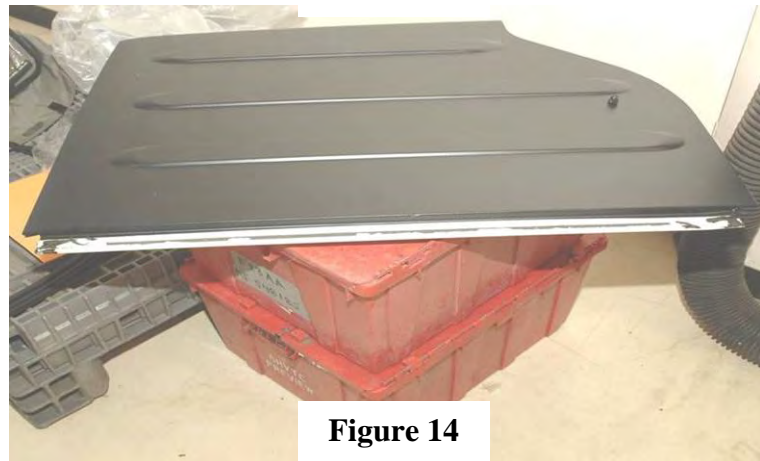


Figure 14



Figure 15

B-Pillar Mocket/Foam Seal Repair

STEP 3: Butyl Installation

- Place right hand freedom panel upside down on a covered surface to prevent scratching
- Apply 4 mm diameter Butyl, Pt # 68027813AA, to Rear Notch (Figure 17)
- Note: Follow groove between panels and push butyl firmly in place
- Apply 4 mm diameter Butyl, Pt # 68027813AA, to Front Notch (Figure 18)
- Note: Follow groove between panels and push butyl firmly in place

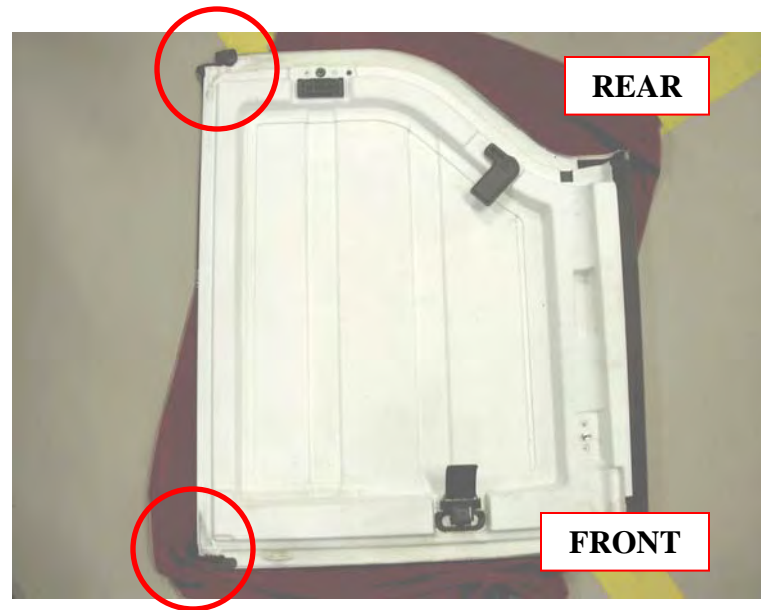


Figure 16

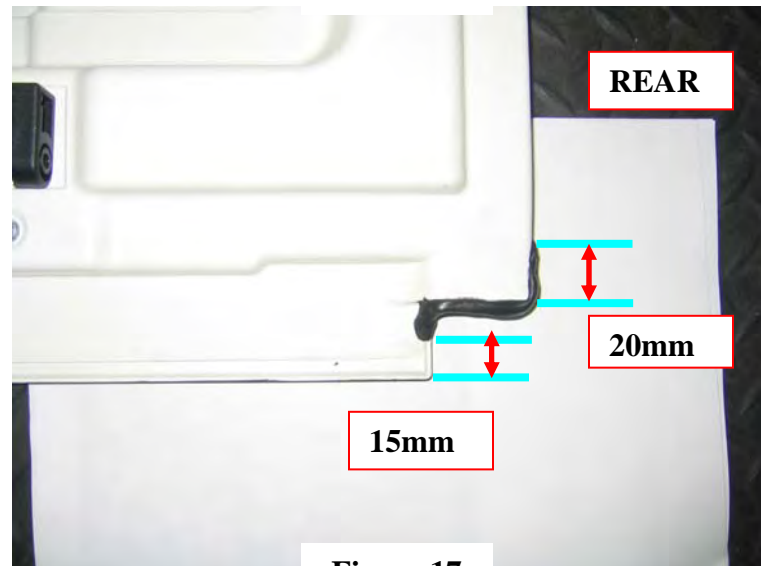


Figure 17

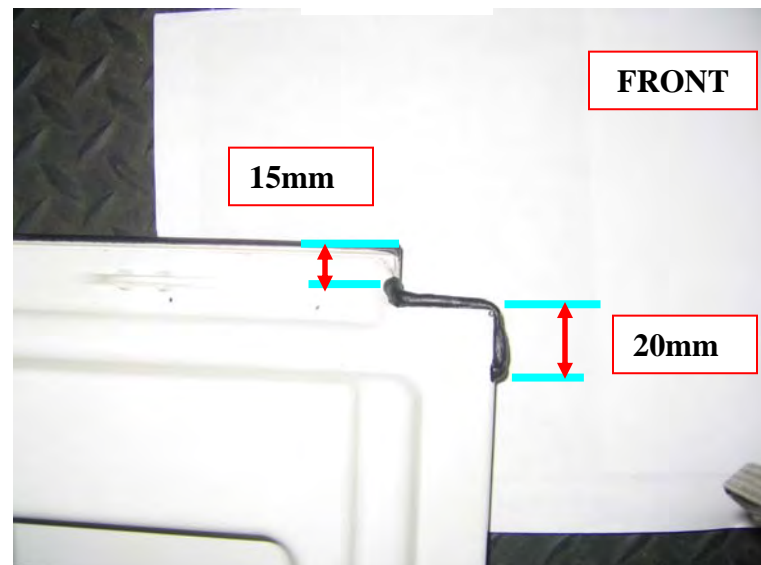


Figure 18

B-Pillar Mocket/Foam Seal Repair

STEP 4: Seal Installation

- Keep freedom panel upside down for the initial installation of the seal
- Remove tape liner from seal

NOTE: Secure the end molds first, then finish with the middle of the seal

Rear Seal Mold

- Align **REAR** edge of NEW seal, Pt # 55397095AG to Right Freedom Panel Notch.
- Compress butyl by installing seal in direction of arrows (Figure 20)
- Note: No gap between installed seal and outer edge of freedom panels. (Figure 20)

Front Seal Mold

- Align **FRONT** edge of NEW seal, Pt # 55397095AG to Right Freedom Panel Notch
- Compress butyl by installing seal in direction of arrows (Figure 21)
- Note: No gap between installed seal and outer edge of freedom panels. (Figure 21)

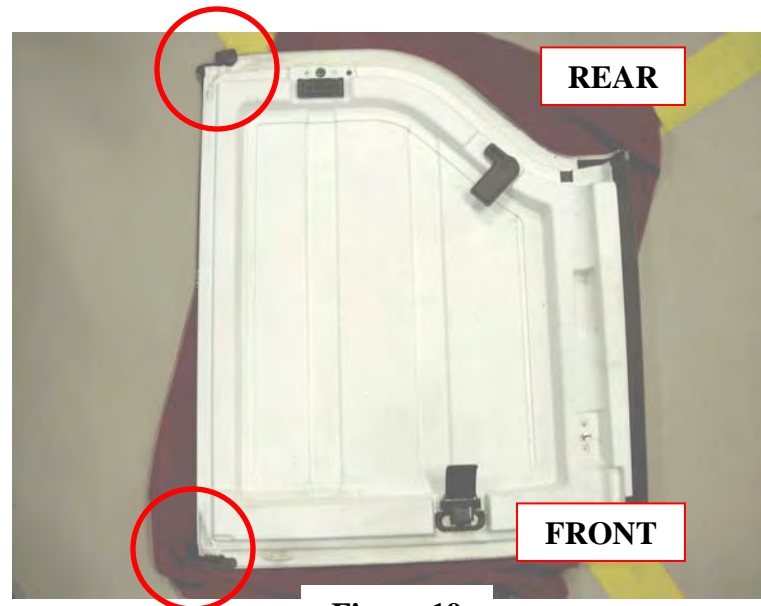


Figure 19

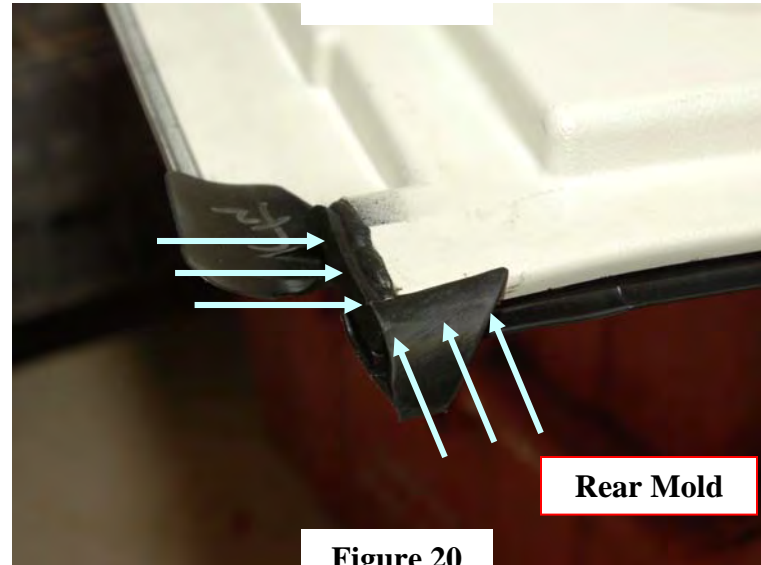


Figure 20

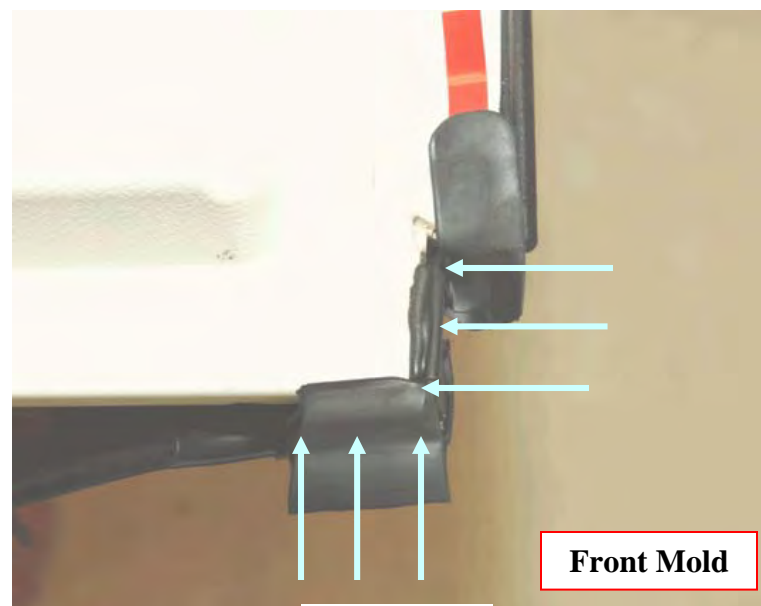


Figure 21

B-Pillar Mocket/Foam Seal Repair

STEP 5: Pressurize Seal

- Flip panel back over to complete the seal installation
- Locate seal cross car against the middle rib in the freedom panel and pressurize starting at the ends and working toward the center
- A small roller or firm finger pressure should be used to insure the seal tape is adhered from front to rear, **THIS STEP IS CRITICAL**

This photo is for reference only. Panel was cut to show rib.



Figure 22

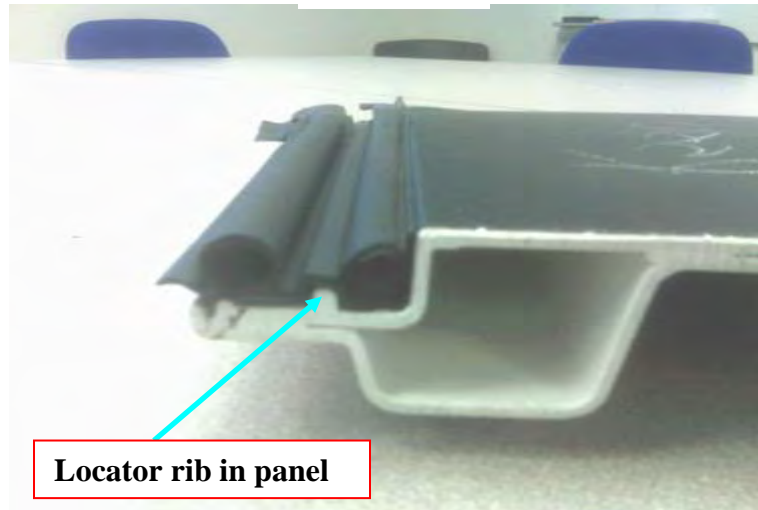


Figure 23

STEP 6: Install foam at Front

- Install **GREY** 30 X 75 mm Foam from kit (68026937AB) along trim lines of flame tip (Figure 24)
- **NOTE:** Make sure foam covers butyl completely

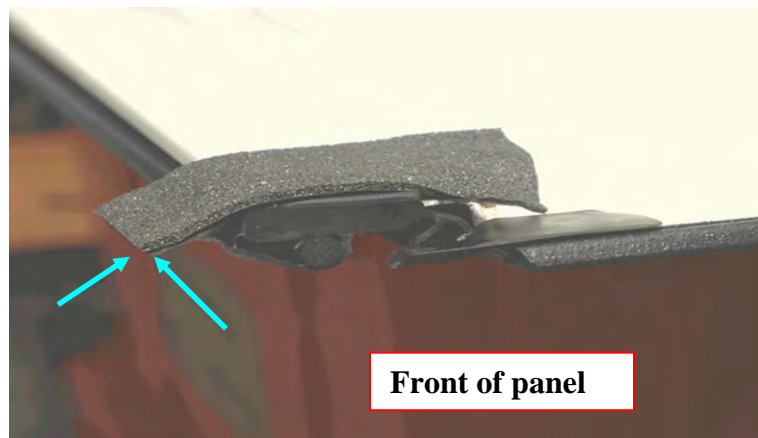


Figure 24

B-Pillar Mocket/Foam Seal Repair

STEP 7: Install foam at Rear

- Install **BLACK** 30 X 75 mm Foam from kit (68026937AB) along trim lines of flame tip (Figure 25)
- NOTE: Make sure foam covers butyl completely

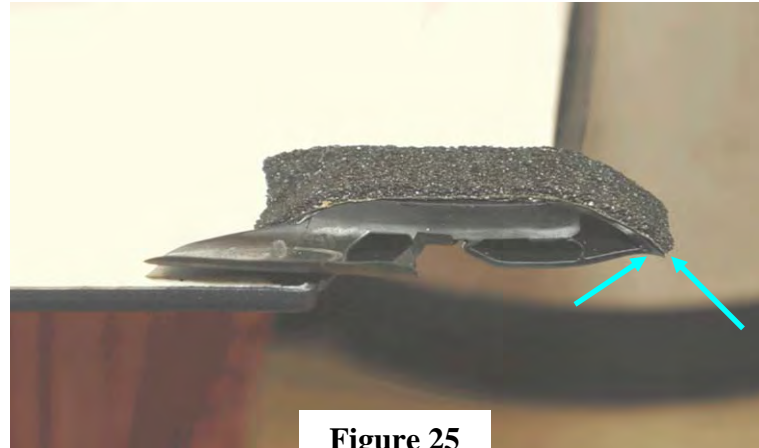


Figure 25

LEFT HAND FREEDOM PANEL

STEP 8: Install butyl at Rear

- Place Left hand freedom panel upside down on a covered surface to prevent scratching
- Add 4mm diameter butyl, (68027813AA) to rear inboard corner groove (Figure 27)
- Note: Push butyl firmly into groove between panels until flush

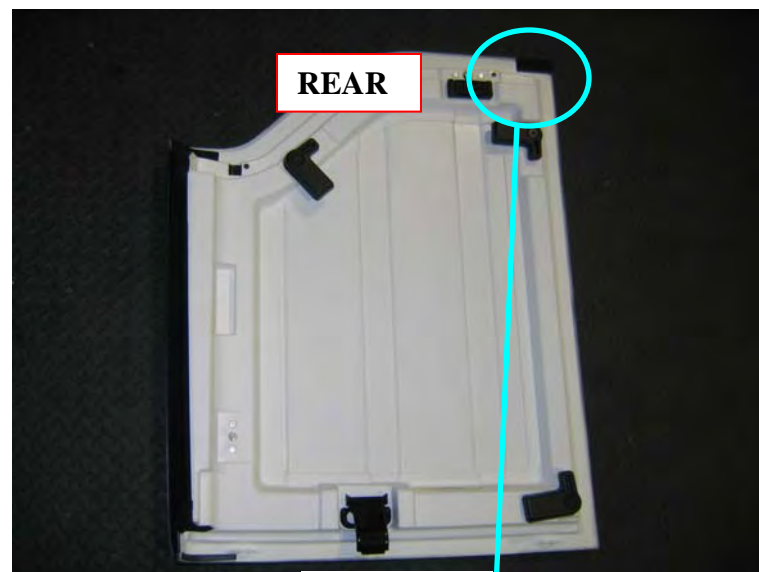


Figure 26

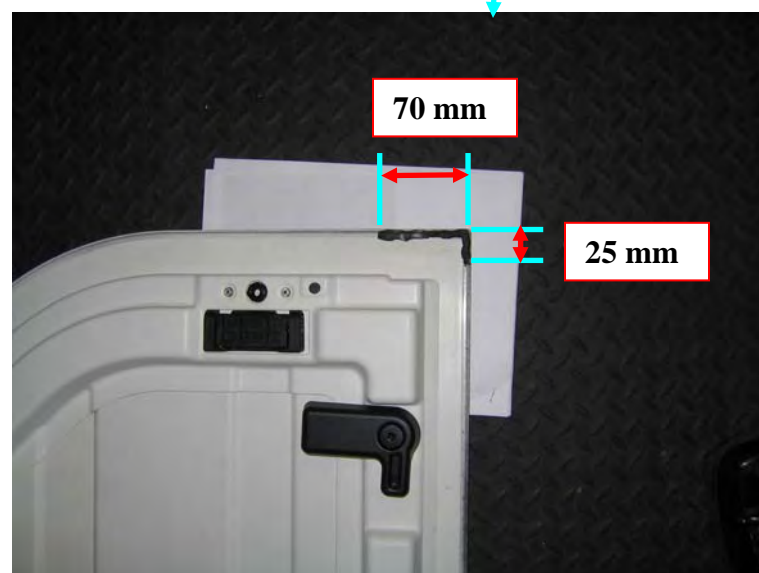


Figure 27

B-Pillar Mocket/Foam Seal Repair

STEP 9: Install foam at Rear

- Add 30 X 75 mm Black Foam from Kit (68026937AB) to cover butyl (Figure 28)
- NOTE: Make sure foam covers butyl completely

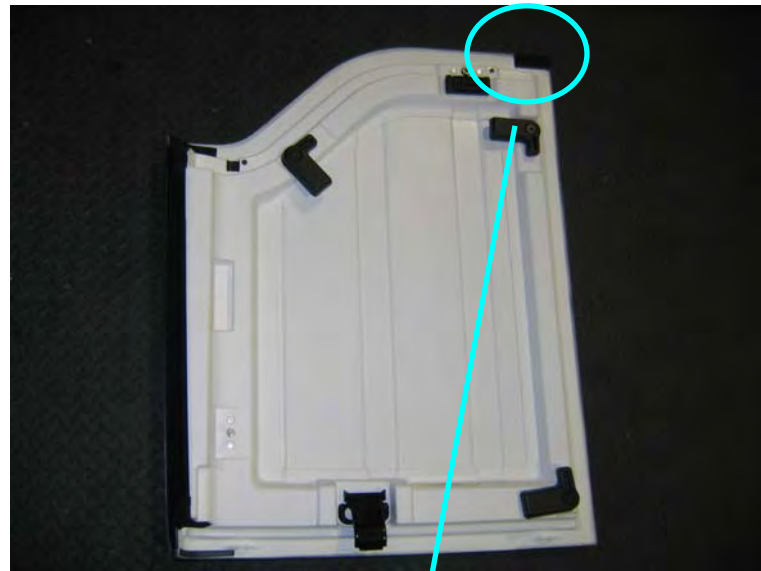


Figure 28

STEP 10: Install front latches

- NOTE: This applies to both Right and Left panels
- If the vehicle MDH is prior to 12/07/07, replace the front latches with part number 68004562AB (Figure 29)



Figure 29

B-Pillar Mocket/Foam Seal Repair

AREA OF LEAK:

- This repair procedure is applicable when water is evident on the:
 - B-pillar roll bar
 - B-pillar trim
 - Freedom panel screw holes

NOTE: Water that enters anywhere along the hard top seal can travel over to the B-pillar and leak from the hard top

STEP 1: Inspect Hard Top Seal

- Inspect for any gaps between the seal and hard top (Figure 30,31)

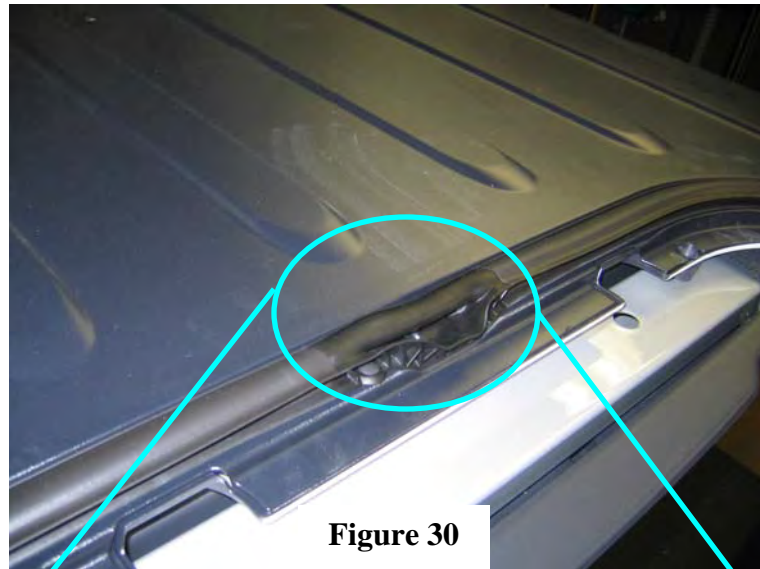


Figure 30

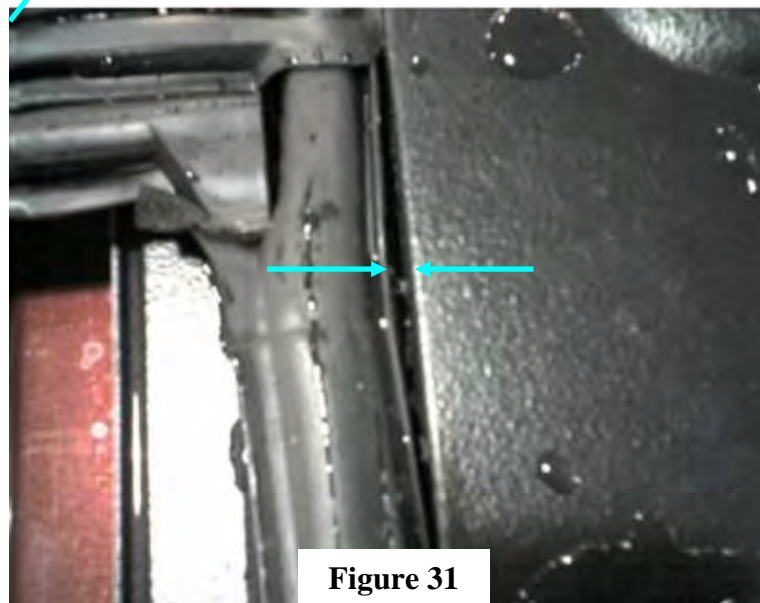
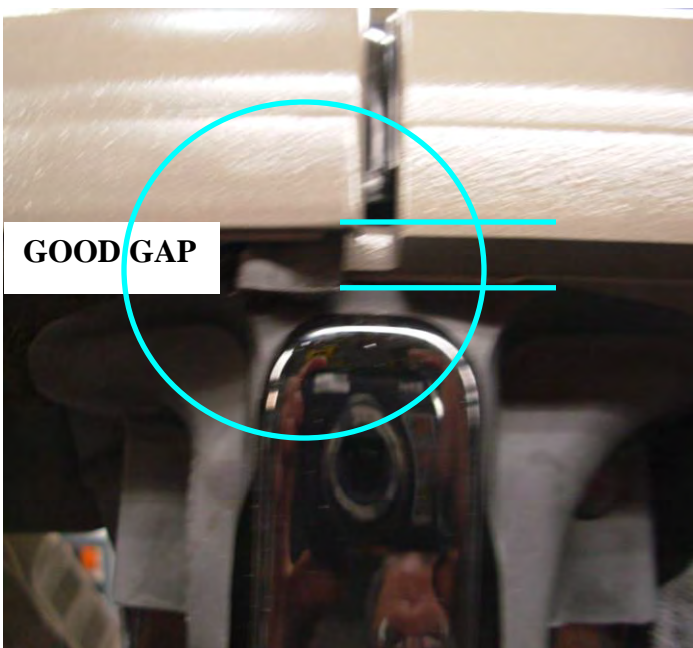
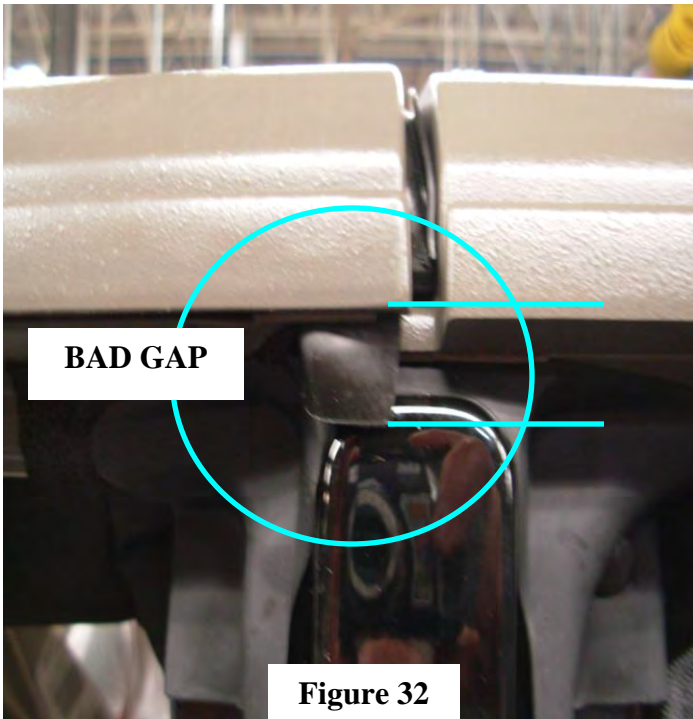


Figure 31

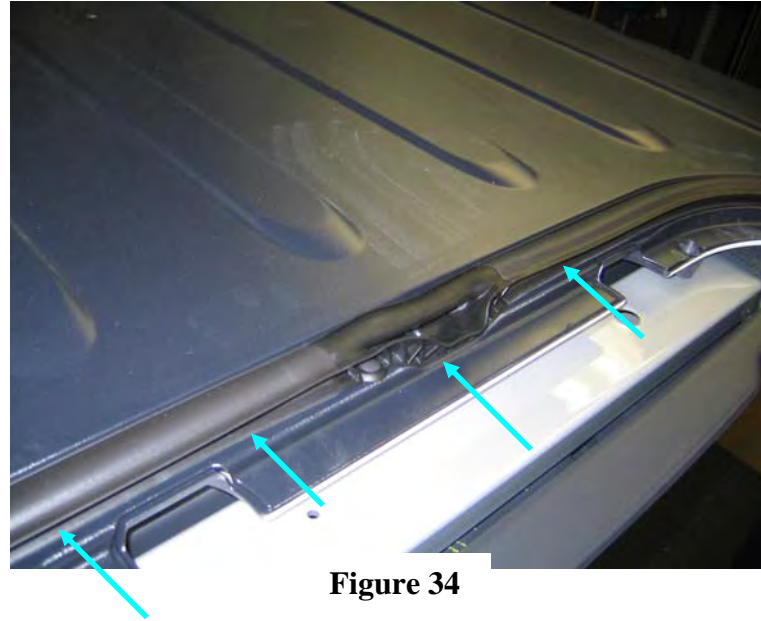
B-Pillar Mocket/Foam Seal Repair

STEP 1: Inspect Hard Top Seal (cont.)

- Inspect the end molds for poor installation (Figure 32)



- Inspect underneath the seal for any skips with the tape/butyl along the entire seal (Figure 34 & 35).



B-Pillar Mocket/Foam Seal Repair

STEP 2: Replace Hard Top Seal

- If there are multiple skips or the leak cannot be stopped, replace seal.
- Remove all tape/butyl and clean with alcohol prior to installation
- A rubber wheel bit can be used to remove the tape
- Pre-apply butyl (68027813AA) on hard top prior to installing the seal (Figure 36)
- It is critical that the end molds are installed correctly and sufficient pressure is applied to wet out the butyl/tape (Figure 36)

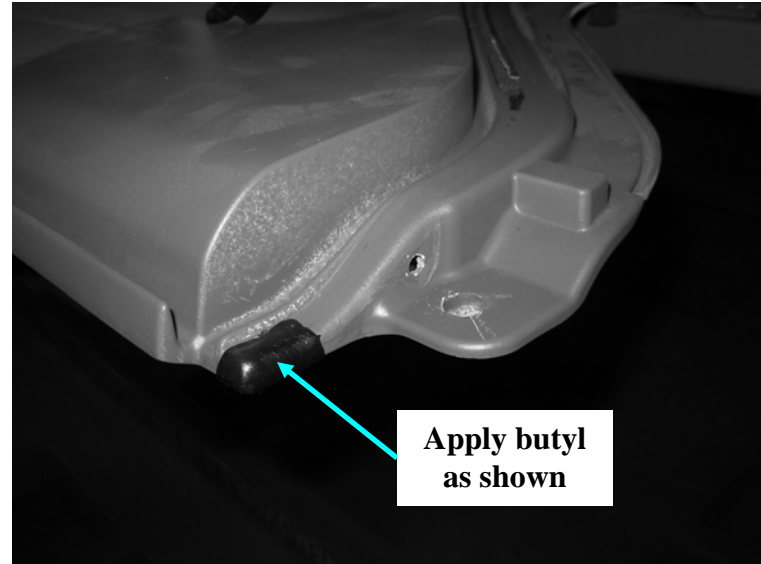


Figure 36

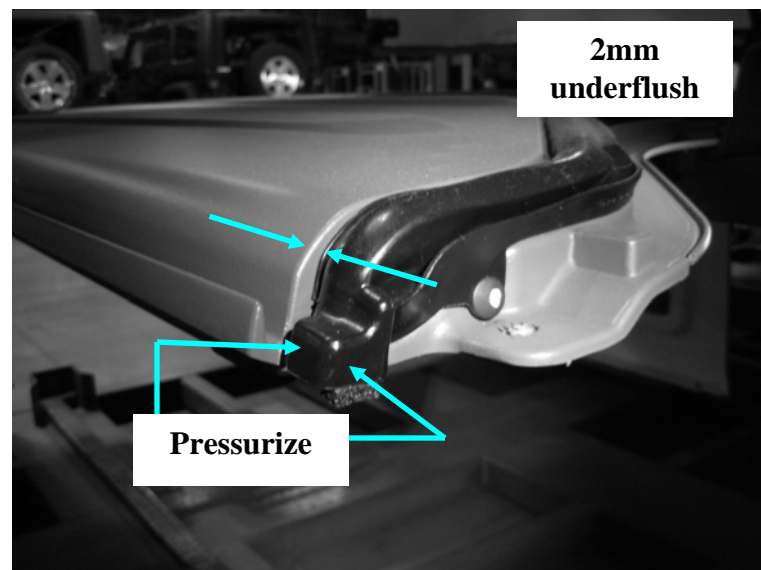


Figure 37

B-Pillar Mocket/Foam Seal Repair

AREA OF LEAK:

- This repair procedure is applicable when water is evident on the:
 - B-plr trim or seat

NOTE: This repair applies to 4 door hard top or soft top models

STEP 1: Inspect mocket detail

- Inspect the mocket for a rolled under condition (Figure 38)
- Inspect the mocket for a missing drain hole

STEP 2: Replace the mocket detail

- If either of these conditions exist, replace the mocket detail (Part #:55395708/9AE)
- Reinstall the panel or side rail making sure not to distort the mocket



Figure 39

B-Pillar Mocket/Foam Seal Repair

STEP 3: Inspect Freedom Panel for damaged or missing foam

- If the foam is damaged or missing, replace the foam using the foam kit (68026937AB)

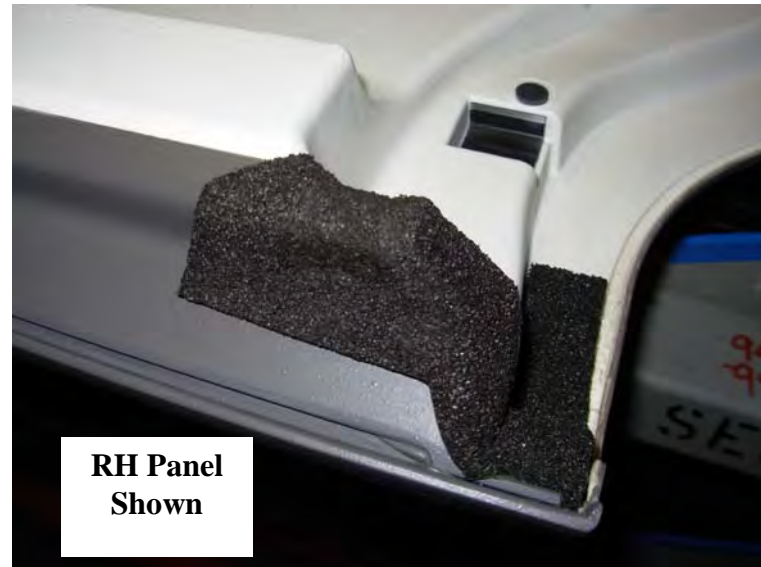


Figure 40

STEP 4: Add additional foam to freedom panel

- Add a piece of foam to the freedom panel as shown in Figure 41. This foam can be created by cutting the 30 x 75mm GREY foam in half from the foam kit (68026937AB)
- Figure 41

NOTE: This foam is in addition to the foam that is already on the panel



Figure 41

Rear Wheel Flare Hole Repair

AREA OF LEAK:

- This repair procedure is applicable when water is evident on the:
 - Front floor (wet carpet)
 - Under seat

NOTE: This leak can be diagnosed by applying a hose to the upper rear flare and inspecting for water traveling along the floor to the front

STEP 1: Remove Rear Flare

STEP 2: Replace/Install Patch

Hole : 1

NOTE: Vehicles built prior to 5/28/08 will require this repair

- Inspect the body for missing or mis-aligned tape over the hole as seen in Figure 43
- Add/Replace a tape patch over the hole

Hole: 2

NOTE: Vehicles built prior to 5/01/09 will require this repair

- Inspect the body for missing or mis-aligned tape over the hole as seen in Figure 43
- Add/Replace a tape patch over the hole

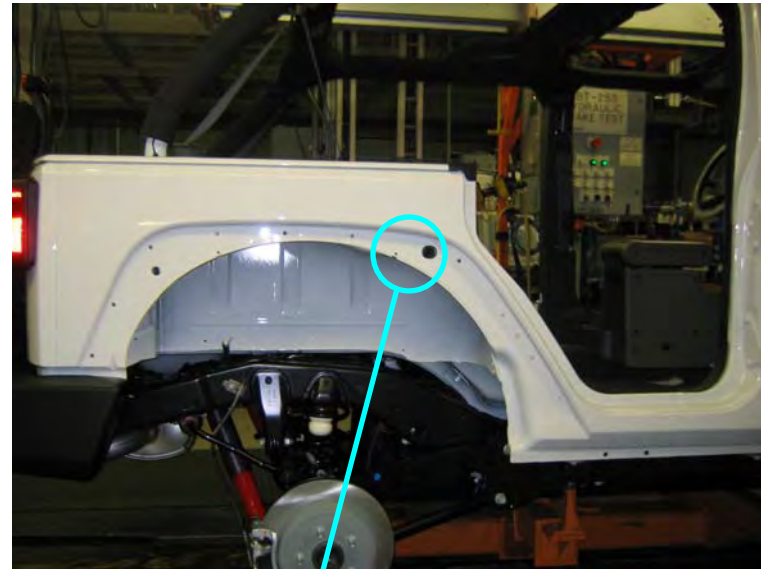


Figure 42

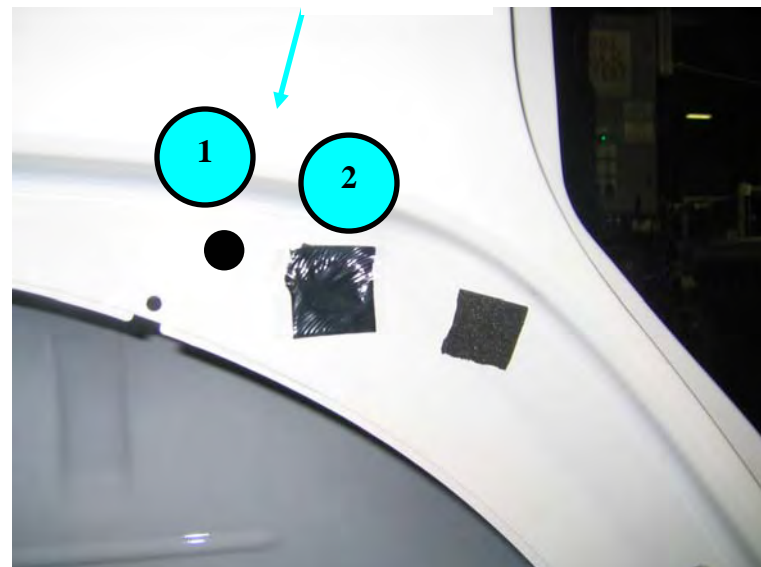


Figure 43

Rear Wheel Flare Hole Repair

Hole:

3

NOTE: Vehicles built prior to 7/22/08 will require this repair

- Cut the BLACK 30 x 75 foam from the foam kit (68026937AB) in half and apply over this hole (Figure 45)
- Make sure the foam does not extend past the flare trim line (appearance issue)
- Re-install flare

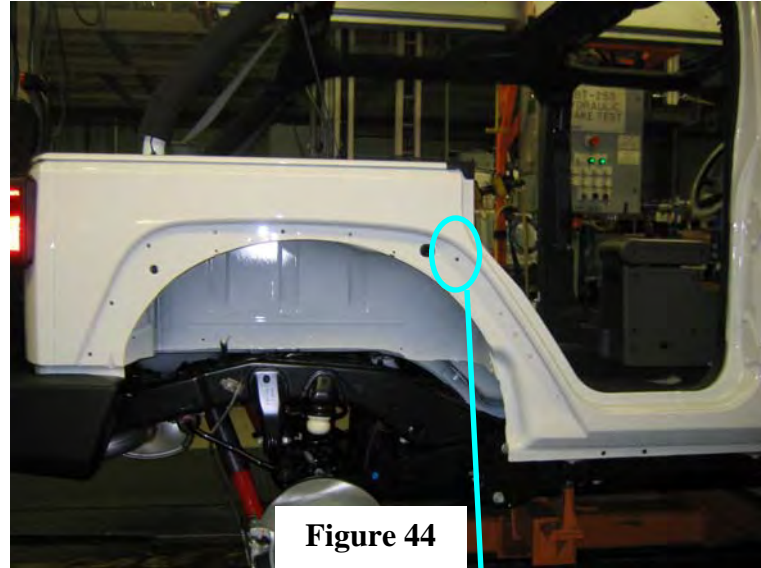


Figure 44

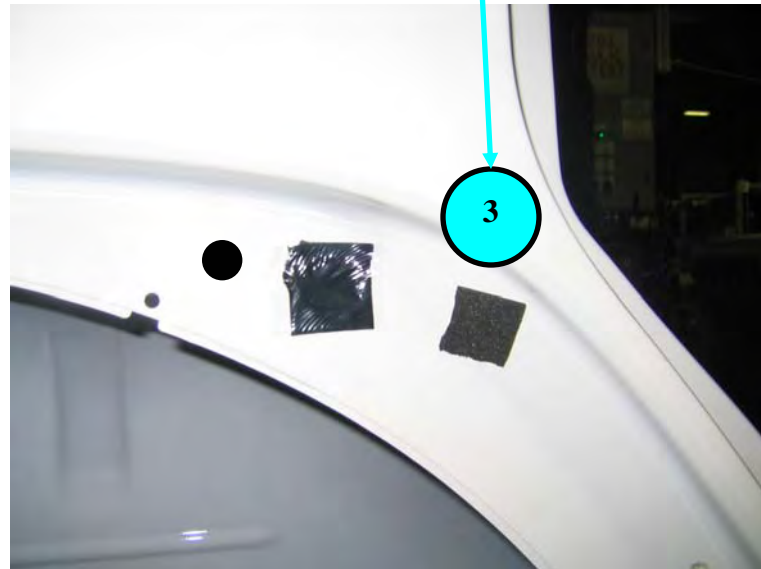


Figure 45

Cowl Side Panel Repair

AREA OF LEAK:

- This repair procedure is applicable when water is evident on the:
 - Front floor (wet carpet)

NOTE: These leaks can be diagnosed by applying a hose in the cowl panel (Figure 47).

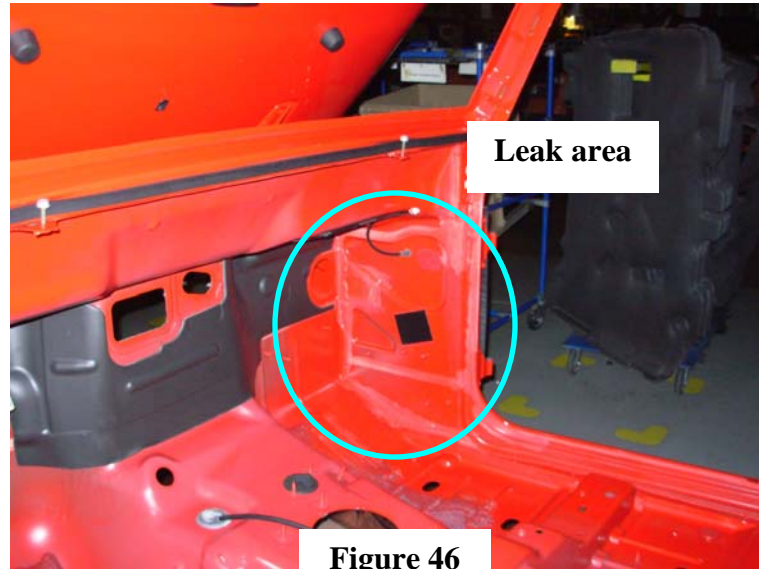


Figure 46

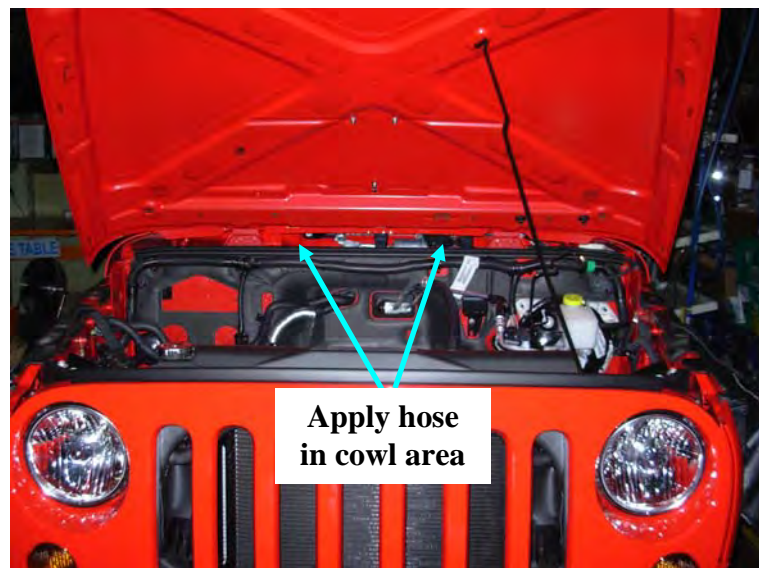


Figure 47

Cowl Side Panel Repair

Condition 1: Mastic patches/Plugs

Repair 1: Replace patch/plug

Condition 2: Check strap bracket

Repair 2: Remove bracket and apply a butyl to holes

Condition 3: Seam sealer skips

Repair 3: Apply clear sealer (part #: 04467708) to skip

Condition 4: Scuff trim foam damaged/missing

Repair 4: Replace trim clips

Condition 5: Antenna grommet not seated

Repair 5: Re-install grommet

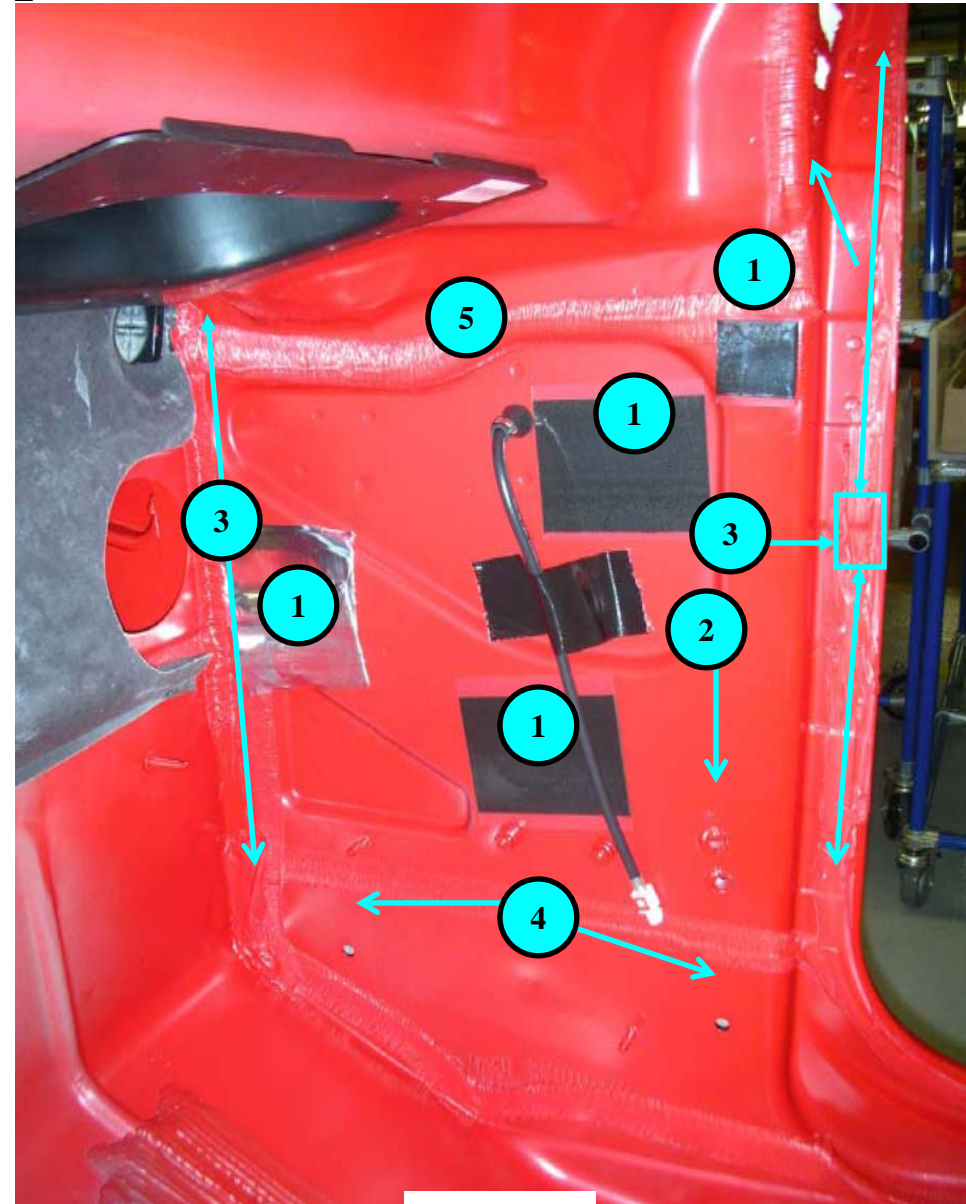


Figure 48

Appendix

Foam Kit: 68026937AB



A/B-Pillar Foam

- Used on Pages (5,16,)

30 mm x 75mm BLACK Foam

- Used on Pages (10,11)

30 mm x 75mm GREY Foam

- Used on Pages (9,16)

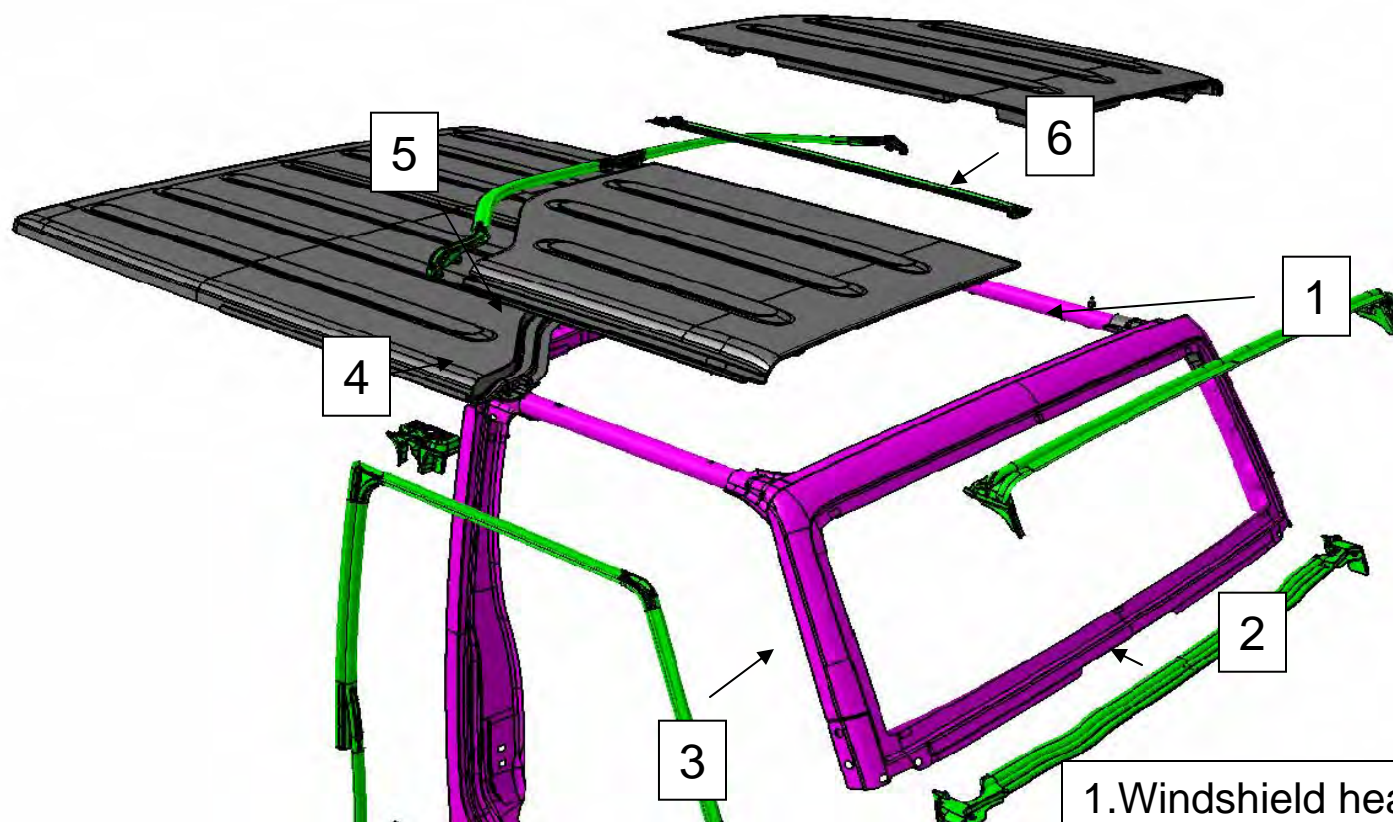
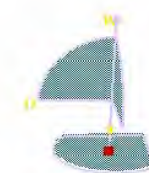
Appendix

Jeep Wrangler **Replacement Parts List**

Part #	Part Name	Page(s)
68027813AA	Butyl	2,7,10,14
04467708	Clear Sealer	20
68026937AB	Foam Kit	5,9-11,16
55397454AE	Windshield Header Seal	2
55395274/5AN	Front Door Primary Seal	3
55395708/9AE	B-Pillar Mocket	15
55397095AG	Freedom Panel Seal	8
55397046AF	Hard Top Seal 4DR	14
55397058AF	Hard Top Seal 2DR	14
68004562AB	Freedom Panel Latch	11

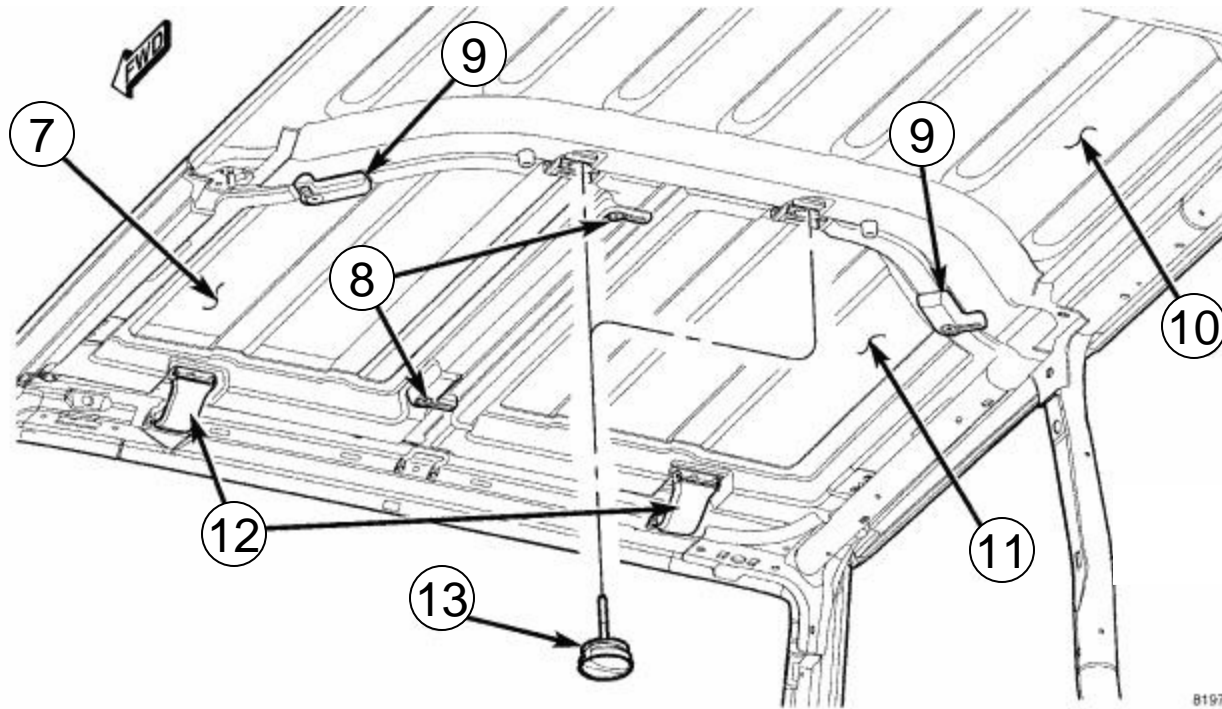
JK Freedom Top -Center Front- Water Leak Repair

Reference TSB # 23-020-08 As Required for additional Repair Information



Outside View

- 1. Windshield header seal
- 2. Windshield to cowl seal
- 3. Front door weatherseal
- 4. B pillar mocket
- 5. Hard top seal
- 6. Center freedom panel seal



81978bf3

Inside View

- 7. Left Freedom Panel
- 8. Panel to Panel Latches
- 9. Panel to Hard Top Latches
- 10. Hard Top
- 11. Right Freedom Panel
- 12. Latch & Base Assembly 68004562AB
- 13. Sport Bar Thumb Screws

***Please note:**

This package addresses water leaks that come from inside the vehicle when the door is closed.

This package **does not** address water that drips into the Vehicle when the door is open.

This is a normal condition!



Foam Kit Contents

68026937AB

These parts with
Light Blue shaded
boxes are Optional /
Replace as required

30 mm x 95 mm x 3 mm-
thick. 2 pieces.

20 mm x 95 mm x 5 mm-
thick. 2 pieces.

2 Pair.

2 Pair

7mm OD x 71mm. 2 pieces

13mm OD x 8mm ID x 160mm. 1 piece.

9 mm x 100 mm x 6.35 mm-
thick. 2 pieces.

30 mm x 75mm x 3 mm-
thick. 3 pieces. Black
Foam

30 mm x 75mm x 2 mm-
thick 1 piece. Gray Foam

10/14/2008

**These 4 pieces of foam are required
for the freedom panel repair.**

Additional Hard Top Foam Locations Included in the foam kit. Replace as required.



Right Freedom Panel

Weather Strip Removal & Freedom panel Cleaning

Remove Right Freedom Panel Center Seal



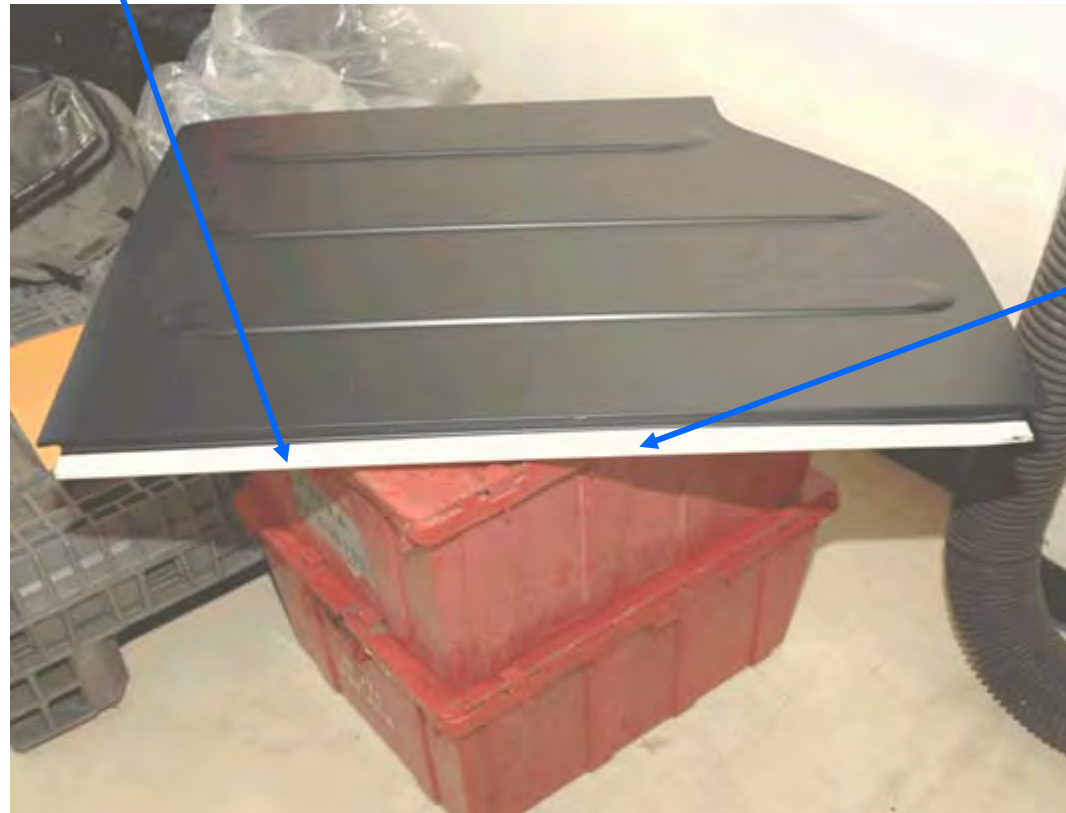
10/14/2008

Remove old Butyl & Tape from Right Freedom Panel



10/14/2008

Note: Old Butyl Removed from Right Freedom Panel



Seal Surface
(White Strip)

Clean Seal Surface with: 3M General Purpose Adhesive Cleaner or Kent Products Acrysol, (if available) and allow to dry completely. Rough up Seal Surface with Medium Scotch Bright pad. Wipe Seal Surface with Alcohol and allow to dry completely.

10/14/2008

Note: Old Butyl Removed from Right Freedom Panel, **Front** & **Rear** Notches



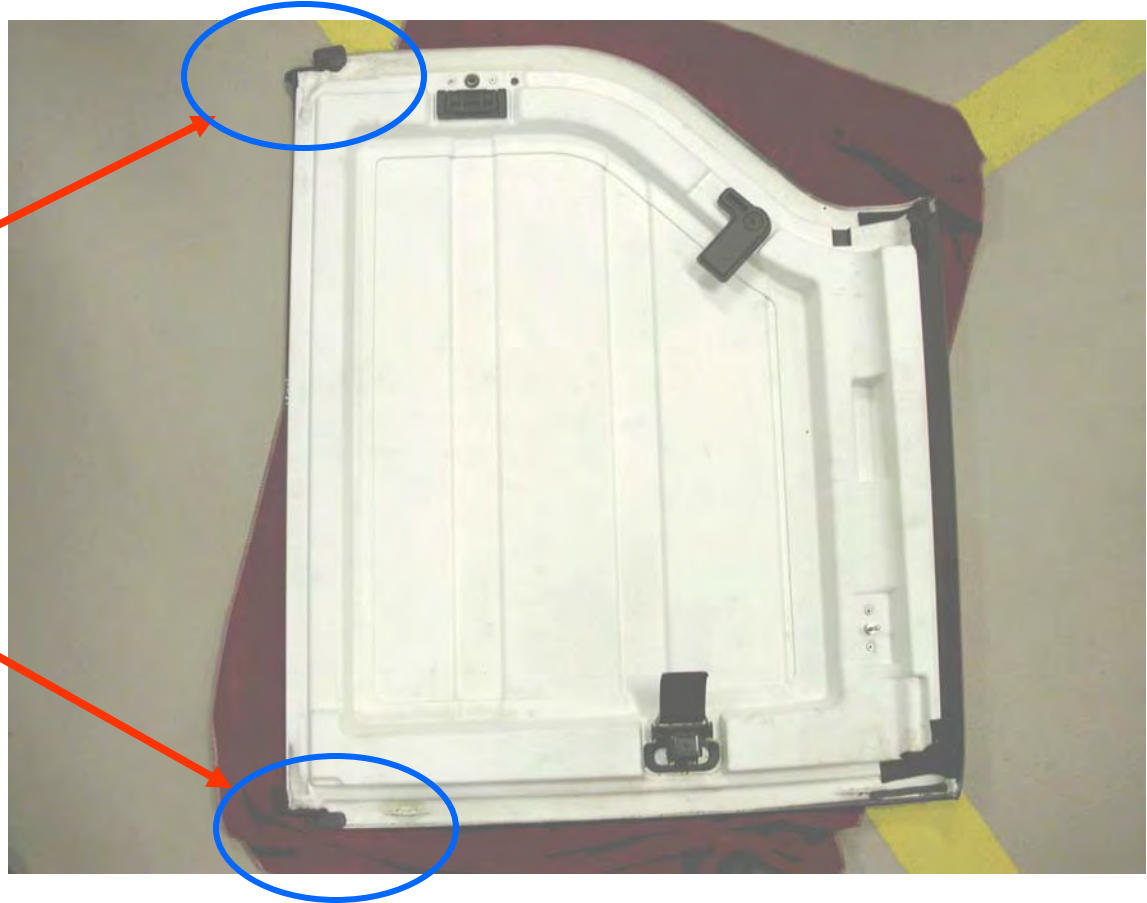
10/14/2008

Place Right Freedom Panel
Upside down on a covered
work surface to prevent paint
Scratching.

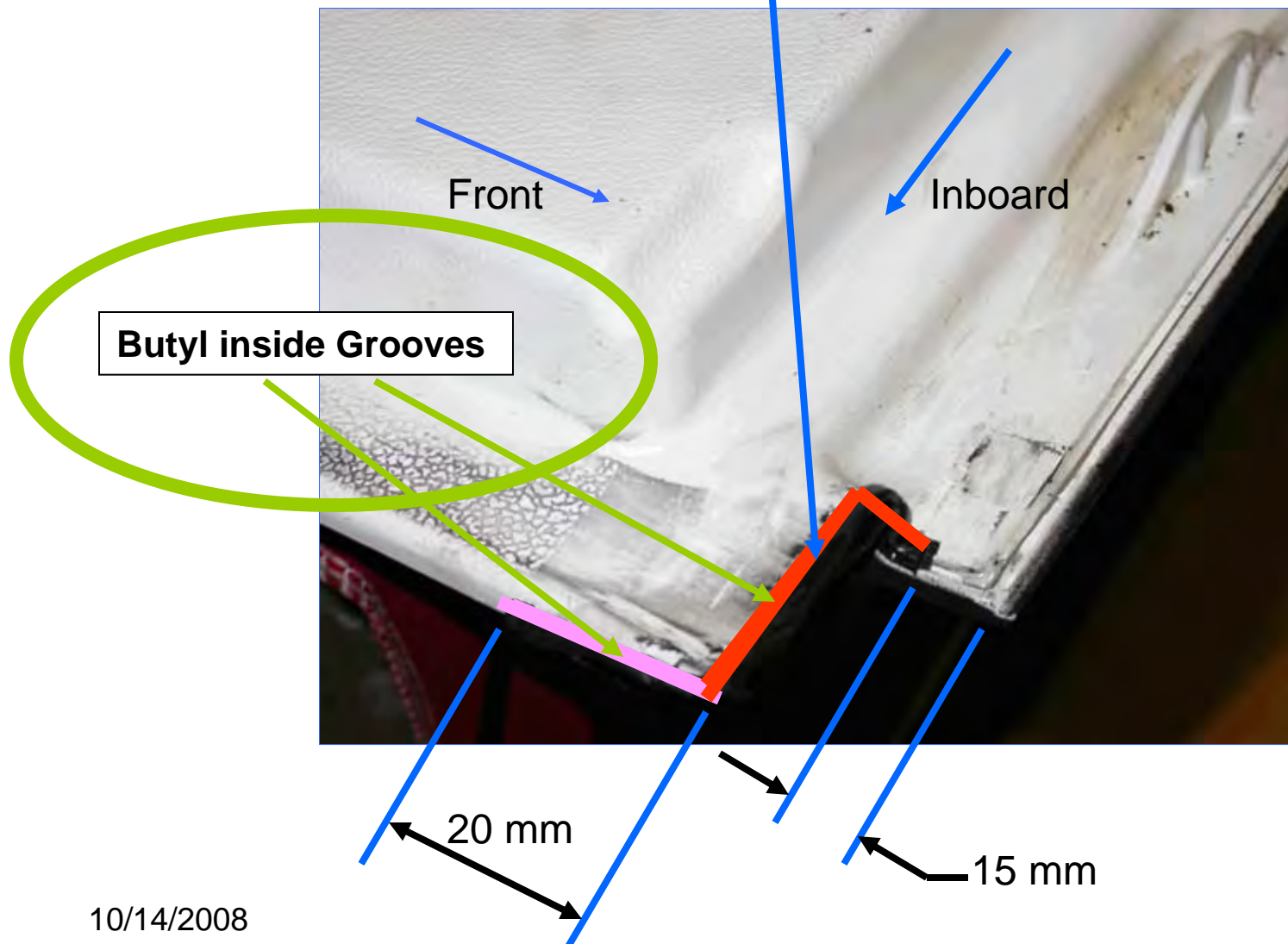
Freedom Panel Notch Butyl installation

Page 15 Rear notch

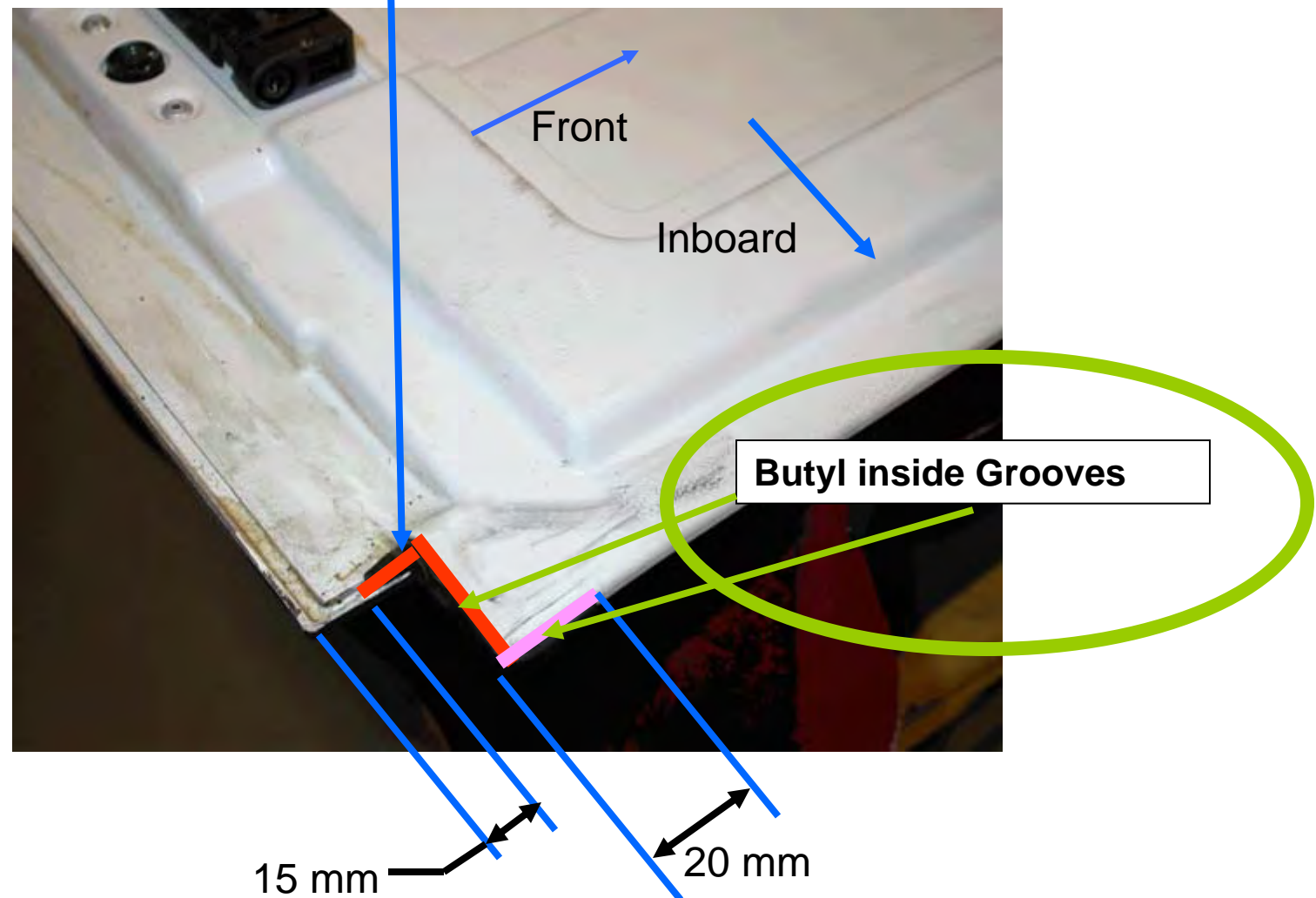
Page 14 Front notch



Apply New 4 mm diameter Butyl, Pt # 68027813AA to Right Freedom Panel, **Front** Notch. Note: Follow Groove between panels and Push Butyl firmly in place.

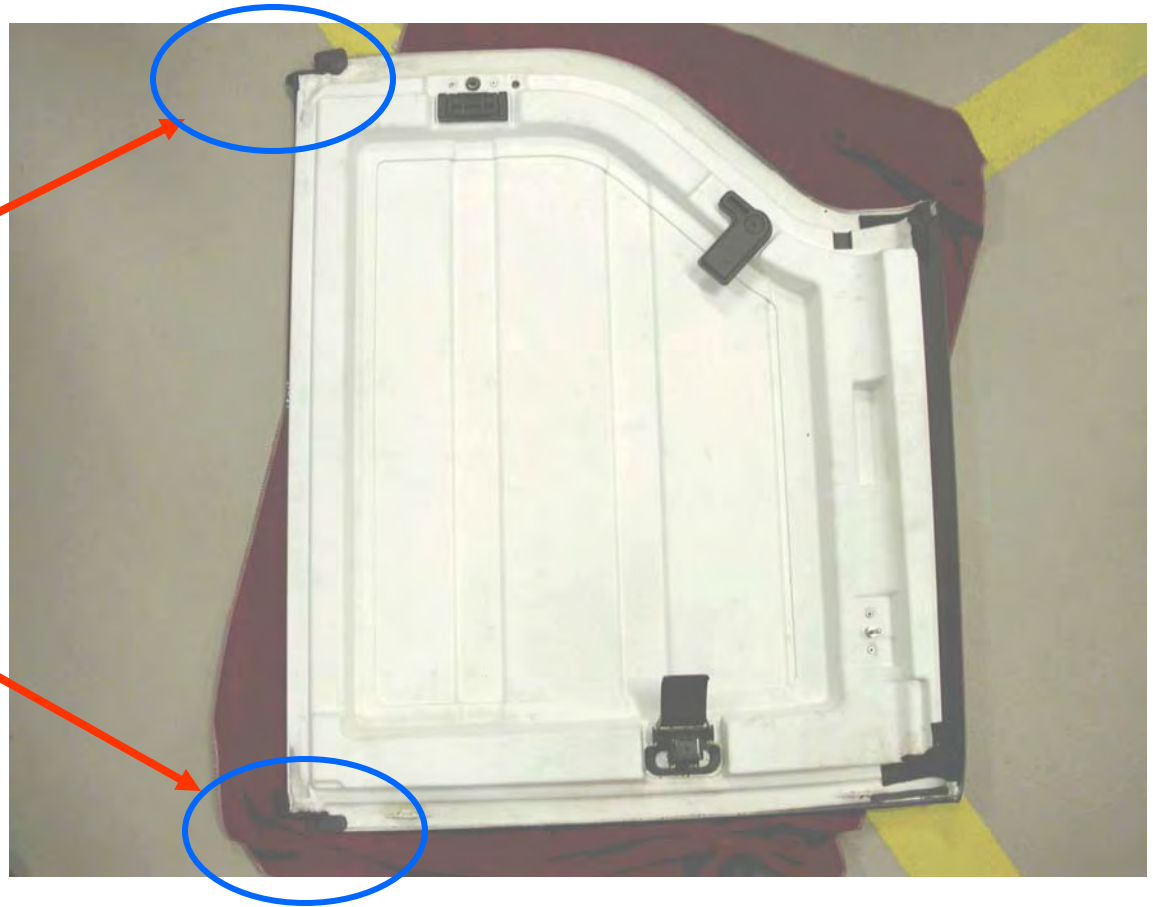


Apply New 4 mm diameter Butyl, Pt # 68027813AA to Right Freedom Panel, **Rear** Notch. Note: Follow Groove between panels and Push Butyl firmly in place.



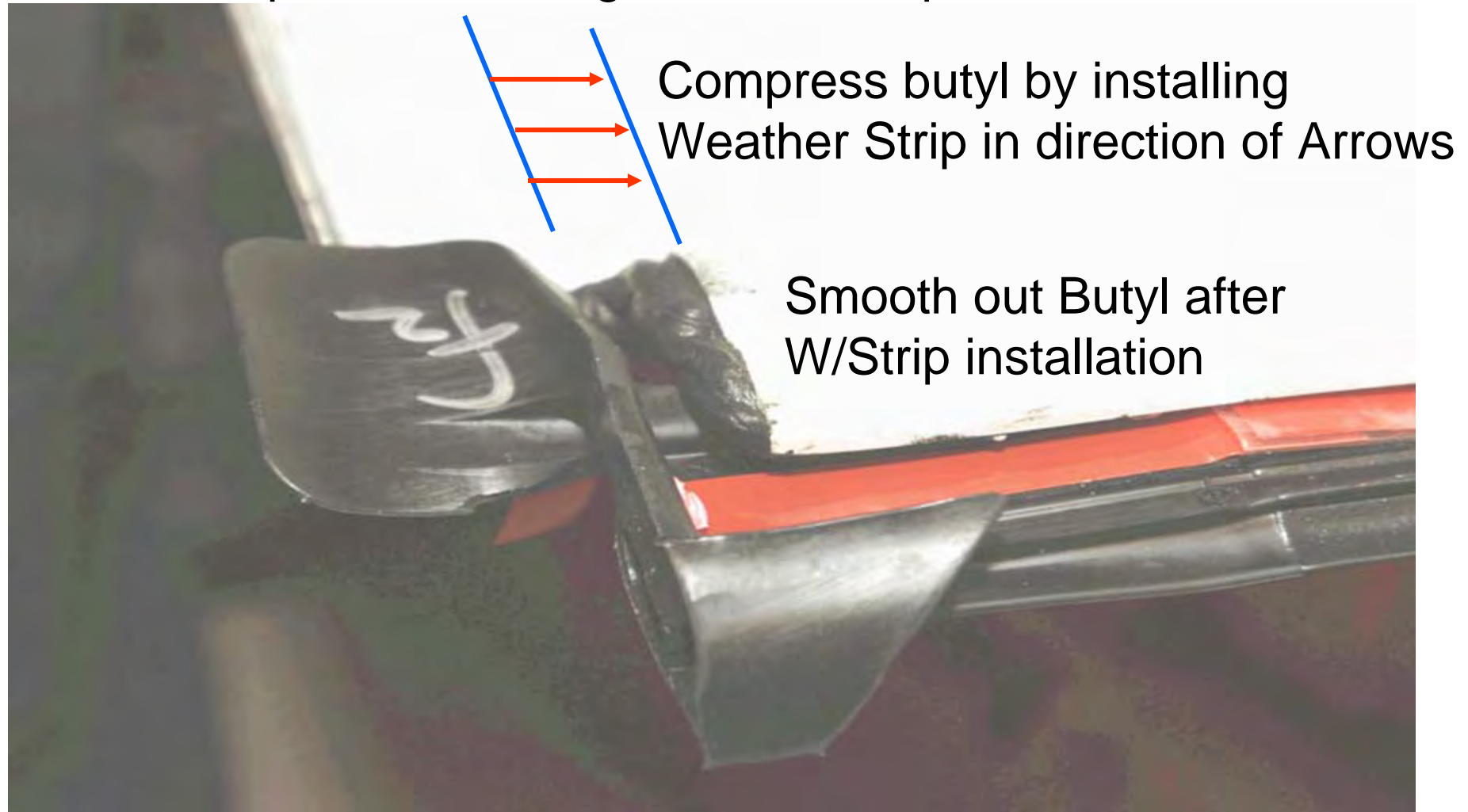
Page 17 Rear Weather
Strip

Page 18 Front Weather
Strip

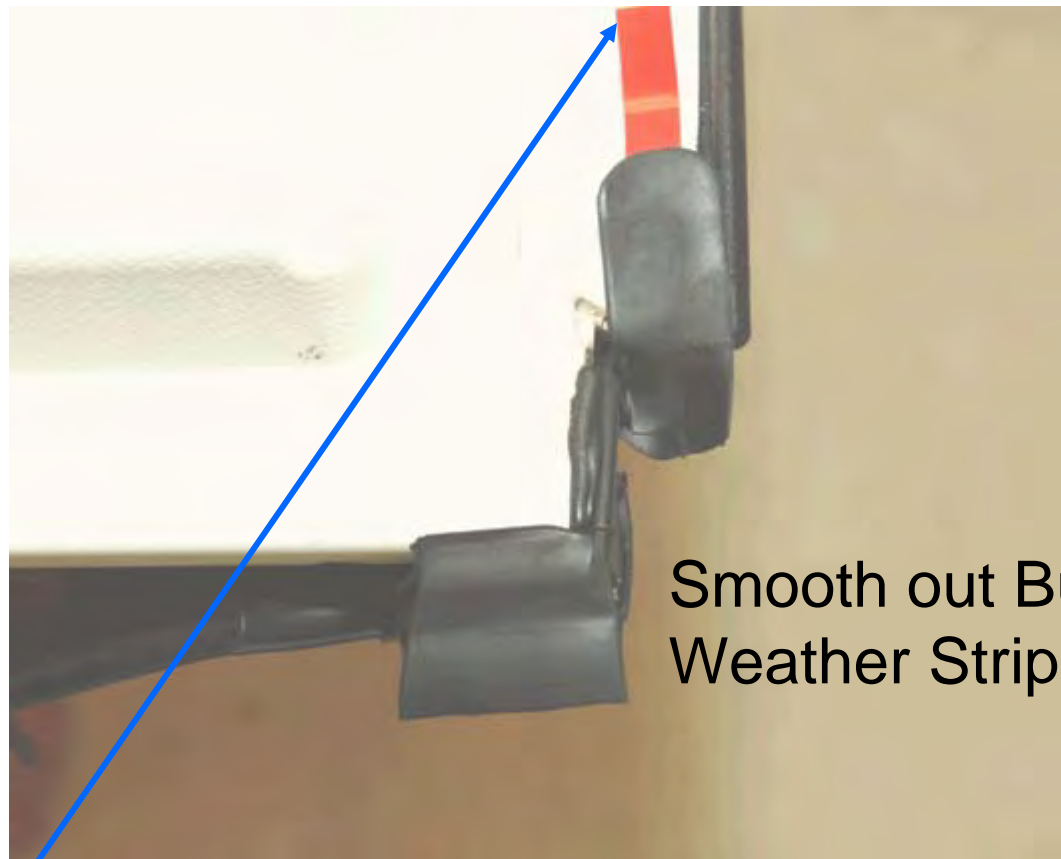


Freedom Panel Weather Strip installation

Align **Rear** edge of NEW Weather Strip, Pt # 55397095AG to Right Freedom Panel Notch. Note: No gap between installed Weather Strip and outer edge of freedom panels.



Align **Front** edge of NEW Weather Strip, Pt # 55397095AG to Right Freedom Panel Notch. Note: No gap between installed Weather Strip and outer edge of freedom panels.



Smooth out Butyl after
Weather Strip installation

Note: Remove Release tape and Press Weather Strip Firmly in contact with Freedom Panel, **Front AND Rear** .

Note Both Ends of new W/Strip Located and installed to
Freedom Panel Center section still shown unattached



10/14/2008

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